

associated minimum forward bias voltage, a transistor collector-emitter junction of PNP transistor Q2 saturates and the system voltage is applied across LED 38, thereby illuminating the LED.

[0070] In case of a negative system voltage, full system voltage is impressed across terminals J1 and J2 when fuse links 34 have opened, thereby forward biasing a base-emitter junction of NPN transistor Q1 through resistor R1. In this condition, as the base-emitter junction voltage is greater than an associated minimum forward bias voltage, a transistor collector-emitter junction of NPN transistor Q1 saturates and the system voltage is applied across LED 38, thereby illuminating the LED.

[0071] Appropriate selection of resistor R1 ensures saturation of transistors Q1, Q2 under positive and negative voltage conditions. Saturation of transistors Q1, Q2 electronically switches the line or input side of the fuse at terminal J1 in series with the alarm output terminal J3, thereby illuminating the bipolar LED 38 to locally indicate the presence of an open-fuse condition. For remote open-fuse alarm indication, terminal J3 is connected to the return or common electrical ground of the fused circuit through a device such as a relay as illustrated in Figure 13. When an open-fuse condition exists, the electronic monitoring circuit 368 will cause the relay to change state and provide the ability to remotely identify the presence of the open-fuse condition.

[0072] In a particular embodiment, transistors Q1 and Q2 have a voltage rating of at least 200 VDC to ensure proper operation of electronic monitoring circuit at system voltages of 80 VDC. In addition, a base current of at least about 100 μ A is required in one embodiment for transistors Q1, Q2 to function properly. Still further, in one embodiment, utilizing a minimum turn on voltage of 18 VDC, resistor R1 has a value of about 59 Kohms, thereby resulting in a base current of about 300 μ A.

[0073] While the invention has been described in terms of various specific embodiments, those skilled in the art will recognize that the invention can be practiced with modification within the spirit and scope of the claims.